



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : William L. Bowden et al.

Art Unit : 1745

Serial No. : 10/085,303

Examiner : Raymond Alejandro

Filed : February 28, 2002

Title : NON-AQUEOUS ELECTROCHEMICAL CELL

Mail Stop Appeal Brief - Patents

Commissioner for Patents

P.O. Box 1450

Alexandria, VA 22313-1450

REPLY BRIEF

Appellants are filing this Reply Brief to address two issues raised in the Examiner's Answer. The first is the relevance of methods of manufacturing lithium cells to the 35 U.S.C. § 103(a) analysis. The second is the Examiner's position that silence on sodium content in Sloop and Flandrois means the lithium cells disclosed by Sloop and Flandrois as a practical matter do not include sodium. Appellants do not agree with this position. But if the Board does, the 35 U.S.C. § 103(a) rejection should be reversed because the claims require that the cells contain at least about 100 ppm sodium.

(1) The Relevancy of the Methods

Appellants explained the relevancy of the methods of manufacturing lithium cells to sodium levels in the Brief on Appeal. See page 7 of Brief on Appeal. Basically, unless a special controlled process is used to make the cells, cells with a sodium content of less than 1500 ppm will not be obtained.

Sloop and Flandrois include essentially no specific details regarding the methods used to prepare their lithium cells. See discussion on page 11 (second paragraph) and 13 (third full paragraph) of the Brief on Appeal. Sloop and Flandrois certainly do not describe any type of special controlled process that would expressly or inherently result in a lithium cell having a sodium content of less than 1500 ppm. In fact, the absolute lack of detail regarding the

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manufacturing processes in Sloop and Flandrois makes it impossible to make the cells disclosed in the references in a manner relevant to the analysis of sodium content.

Appellants contend that the silence on using a special manufacturing process in Sloop and Flandrois means that the references suggest lithium cells having a sodium content well in excess of 1500 ppm.

The Examiner disagrees, which leads to the second issue.

**(2) The Claims Also Require
a Sodium Content of Less
Than About 100 ppm**

All the claims require that the lithium cells include a minimum sodium content of about 100 ppm. This requirement was added during prosecution, after the Examiner contended that unless the prior art explicitly said something about the sodium content of a lithium cell, the lithium cell would be deemed to contain no sodium. Appellants did not agree with this contention, but added the lower limit of about 100 ppm in an effort to advance prosecution (to no avail).

The Examiner resurrected this position in the Examiner's Answer when discussing Sloop and Flandrois. In particular, the Examiner repeatedly states:

... in the absence of any electrochemical cell component/feature derived from and/or containing sodium (Na), the electrochemical cell may exhibit zero content of sodium (Na), that is to say, no sodium (Na) content at all.

See pages 5, 7, 9, and 12 of the Examiner's Answer.

Of course, this position results in a problem for the Examiner, since Sloop and Flandrois are silent on sodium and the claims require a sodium content of at least about 100 ppm. To get around this problem, the Examiner points to Harrison and Boryta, which describe making ultra pure lithium metal (Harrison) and precursors to a lithium metal (Boryta). Both references teach a lithium metal that includes less than 100 ppm sodium.¹ The Examiner contends that a person of

¹The Examiner points out that paragraph 30 of Harrison says the ultra-pure lithium has up to "100 Na or 190 Na." See page 8 of Examiner's Answer. Paragraph 30 of Harrison actually says "Na (100), Na (190), N (300), Fe (100), K (100) and Cl (60)." But the "Na (190)" is a clear typo; Harrison meant "Ca (190)." Ca is calcium. The Examiner should have recognized this because an earlier paragraph (paragraph 23) and a subsequent sentence (in paragraph 30) lists Na first, followed by Ca.

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ordinary skill in the art would incorporate the lithium from Harrison or Boryta into the lithium electrode taught by Sloop or Flandrois to obtain a lithium cell having a sodium content of 100 ppm, which overlaps with the lower limit of "about" 100 ppm in the claims.

The Examiner's analysis has a rather large hole -- Sloop, Flandrois, Harrison, and Boryta are silent, and suggest nothing, about the sodium content of the many other components used in a lithium cell. The Examiner has repeatedly taken the position that silence on sodium can mean no sodium. Thus, even if the lithium from Harrison or Boryta, having a sodium content of 100 ppm or less, is used in an electrode of Sloop or Flandrois, under the Examiner's rationale, the resulting lithium cell will have well under 100 ppm sodium because the other components in the lithium cells disclosed by Sloop or Flandrois do not include any sodium.

(3) Conclusion

For the reasons explained earlier and in the Brief on Appeal, Appellants believe Sloop and Flandrois suggest lithium cells having a sodium content in excess of 1500 ppm. However, to the extent the Board adopts the Examiner's reasoning, that silence on sodium content implies no sodium, Appellants submit that the 35 U.S.C. § 103(a) rejection should be reversed because Sloop, Flandrois, Harrison, and Boryta, in whatever combination, do not suggest a lithium cell having a sodium content of at least about 100 ppm.

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Respectfully submitted,

Date: April 3, 2006

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